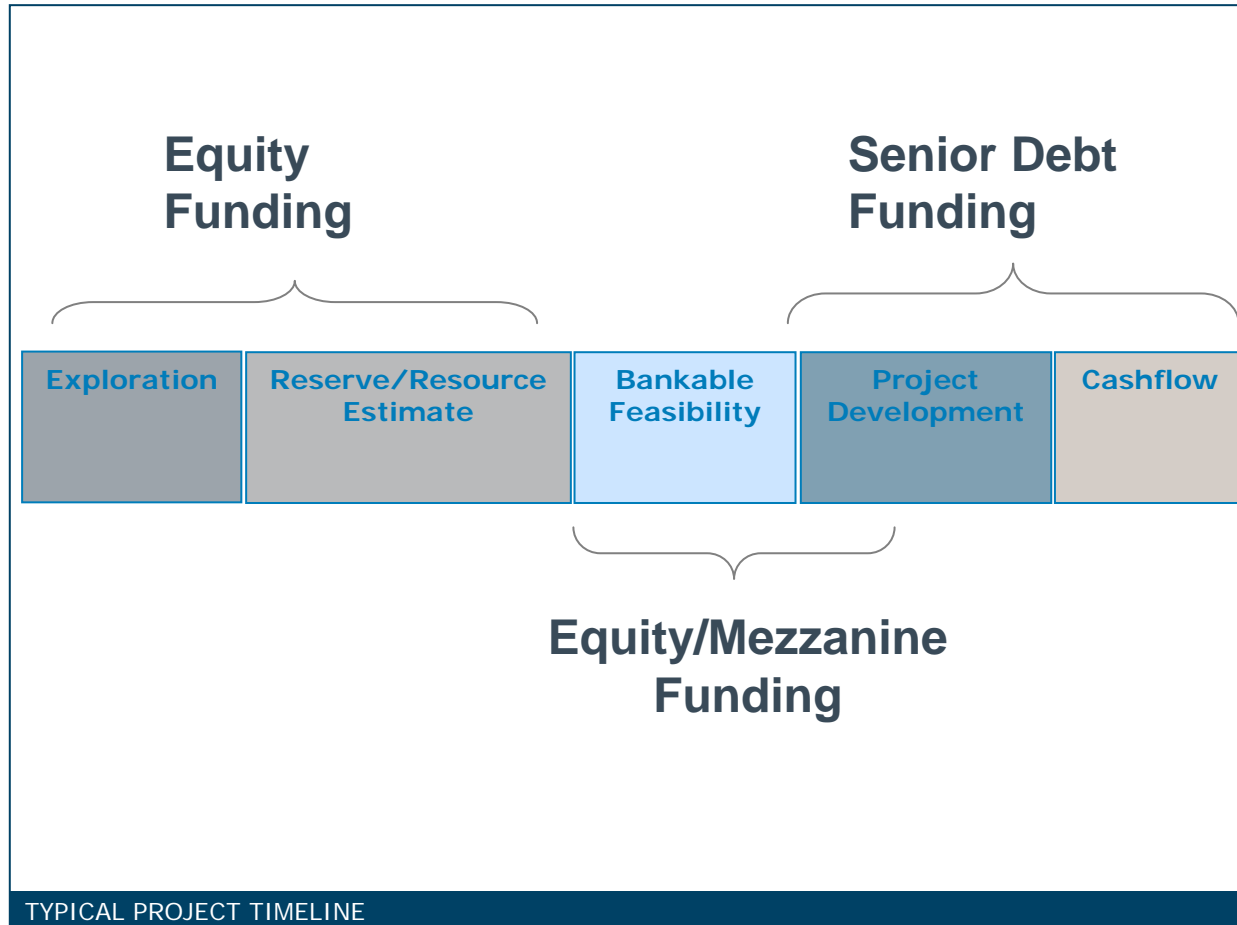




Australia Cost Engineering Society & AACE International Australian Section

ACES Evening Seminar

19 July 2011



Aside from acquisition funding for existing operations, a company's ability to finance a Project typically follows the completion of a Bankable Feasibility Study ($\pm 10\%$), which covers all the technical evaluation of a Project and confirms its financial viability.

- > can the Project be built on-time and on-cost?
- > will the Project perform as forecast?
- > what are the key areas where the Project can go wrong?
- > does management have expertise to fix things when they go wrong?
- > are all parties properly incentivised to complete their roles?



- > Technical
- > Reserves
- > Market
- > Legal
- > Documentation
- > Tax & Accounting
- > Model Audit

KEY PROJECT RISKS

Risks	Description	Mitigants
Sponsor Risk	<ul style="list-style-type: none"> > does the Sponsor have the ability to put in its base equity? > ability of Sponsor to raise additional funds as required 	<ul style="list-style-type: none"> > Cash reserving / upfront injection of equity
Management Team	<ul style="list-style-type: none"> > track record of management team > track record of operations team 	<ul style="list-style-type: none"> > Experienced Management Team
Construction Risk	<ul style="list-style-type: none"> > cost to complete risk > time to complete risk > is there sufficient funding to cover cost over runs and delays? 	<ul style="list-style-type: none"> > Technical Due Diligence > Fixed Time / Fixed Cost contracts > Experienced Project Manager
Commissioning Risk	<ul style="list-style-type: none"> > is the Technology proven? > is the ramp-up period realistic? 	<ul style="list-style-type: none"> > Proven Technology > Adequate Liquidity
Logistics	<ul style="list-style-type: none"> > risk of asset becoming a stranded asset? > who is funding rail / port capacity / expansion? 	
Reserves Risk	<ul style="list-style-type: none"> > what is risk of a reserves downgrade? > is ore body complex? 	<ul style="list-style-type: none"> > Banking Reserves > JORC Compliant
Operating Risk	<ul style="list-style-type: none"> > cost control if contract mining? > Cost Curve Analysis / Breakeven cash cost > is mining operations / scheduling complex? 	<ul style="list-style-type: none"> > Credible Operator > Cost Curve Analysis > Breakeven Cash Cost

KEY PROJECT RISKS

Risks	Description	Mitigants
Market Risk	<ul style="list-style-type: none"> > demand / supply forecasts for commodity > alternative buyers for product > any impurities in product which may make it more difficult to sell > offtake counterparty risk? 	<ul style="list-style-type: none"> > Offtake contracts > Product specs / alternative buyers
Economic Risks	<ul style="list-style-type: none"> > Vulnerability to FX movements > Vulnerability to Interest Rate movements 	<ul style="list-style-type: none"> > Hedging > Currency of loan
Political Risks	<ul style="list-style-type: none"> > change of law > enforceability of contracts / agreement > risk of expropriation / nationalisation > war and civil unrest 	<ul style="list-style-type: none"> > Political Risk Insurance > Multi-Lateral Agencies and ECA involvement > National significance of Project to country
Environmental Risk	<ul style="list-style-type: none"> > risk of environmental disaster > risk of action by NGOs > ability of Project to operate within regulatory and statutory standards 	<ul style="list-style-type: none"> > Environmental and social due diligence (Equator Principles)
Social Risk	<ul style="list-style-type: none"> > need to resettle people? > threat of civil unrest? > threat to sabotage? 	

Principles sets out process for banks to follow in assessing and mitigating environmental and social risks associated with a project

- EP 1:** Review and Categorisation
- EP 2:** Social and Environmental Assessment (SEA)
- EP 3:** Applicable Social & Environmental Standards applied
- EP 4:** Action Plan (AP) developed from SEA
- EP 5:** Consultation and disclosure
- EP 6:** Grievance Mechanism
- EP 7:** Independent Review
- EP 8:** Covenants
- EP 9:** Independent Monitoring & Reporting
- EP 10:** Public Reporting

Projects in non High Income OECD country and non-OECD countries has to be assessed against applicable IFC Performance Standards and Industry Specific EHS guidelines

IFC Performance Standards

PS 1	S&E Assessment and Management System
PS 2	Labour and Working conditions
PS 3	Pollution Prevention and Abatement
PS 4	Community Health, Safety and Security
PS 5	Land Acquisition and Involuntary Resettlement
PS 6	Biodiversity Conservation and Sustainable Natural Management
PS 7	Indigenous Peoples
PS 8	Cultural Heritage

Environmental, Health and Safety Guidelines for Mining

Provides recommendation for potential environmental issues including the management of

- Water Use and Quality
 - The quality and quantity of mine effluent streams discharged to the environment should be managed and treated to meet the effluent discharge guideline
- Wastes
 - Design, operation and maintenance of tailings storage dams to be in accordance with specifications of International Commission on Large Dams and Australian National Committee on Large Dams
 - Deep sea tailings placemen may be considered as an alternative only in the absence of any environmentally and socially sound land-based alternative. Impact assessment must demonstrate that the discharge is not likely to have significant adverse effects on marine or coastal resources or on local communities
- Hazardous materials
- Land use and biodiversity
- Air Quality
- Noise and vibration
- Energy use
- Visual impact
 - Mining operations should prevent and minimise negative visual impacts through consultation with local communities about potential post-closure land use

Quantification of Risks and impact of sensitivities on cashflows

RATIOS:

> **DSCR** = Cashflows Available for Debt Service / Debt Service

- Measure of ability to repay debt at a point in time
- Backward-looking test (forward looking also possible)

> **LLCR** = NPV (CFADS over Loan Life) / Debt Outstanding

- Measure of ability for Project to repay debt over debt tenor
- Forward-looking test
- NPV discount rate usually weighted average cost of debt

> **PLCR** = NPV (CFADS over Project Life)/Debt Outstanding

- Measure of ability of Project to repay debt over Project life
- Forward-looking test
- NPV discount rate usually weighted average cost of debt

> **RLCR** = Product over Project Life / Product over Loan Life

- Measure of the Reserve tail left beyond the tenor of the debt
- Forward-looking test

- > P90 construction costs vs P50 construction costs
- > Additional Funding built-in to cover cost overruns and delays
- > Slower ramp-up / longer commissioning period
- > More conservative technical assumptions (eg. recovery rates, overburden removal, grades, milling rates etc.)
- > More conservative supply input prices (eg. diesel/oil price, chemical prices)
- > Reliance on reserves only
- > More conservative commodity prices over life of project, typically based on an independent forecast
- > Interest Rates and FX assumptions based on the forward curve if not hedged

What ensures a successful Bankable Feasibility Study?

- > Don't rush the Study
- > Use credible, known consultants
- > Get a bank involved early in the process

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